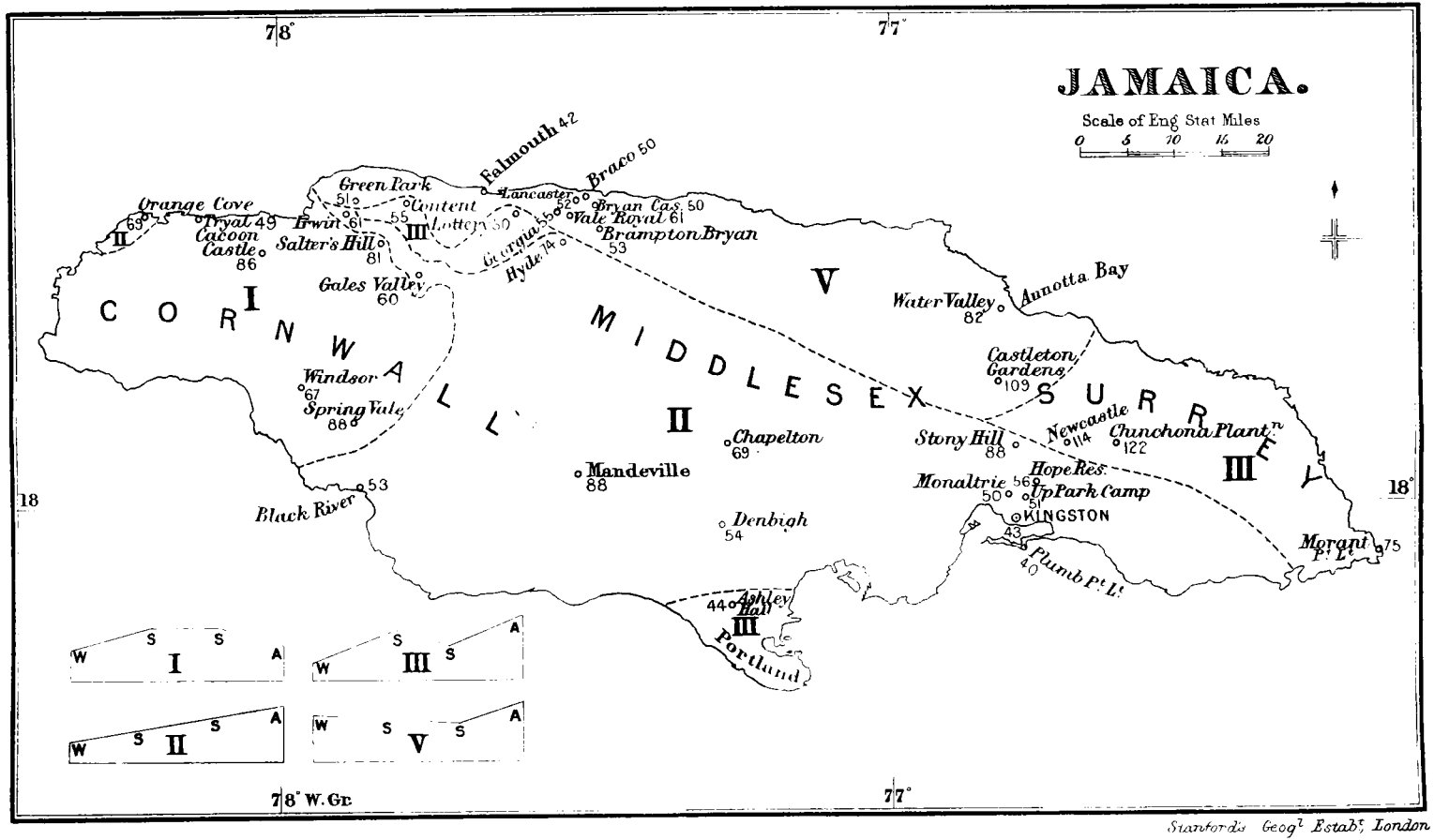
78°
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JAMAICA.
Scale of Eng Stat Miles
0 5 10 15 20
Falmouth 42
Braco 50
Green Park
Content
Lancaster
Bryan Cas. 50
Vale Royal 61
Brampton Bryan
Orange Cove
Tryal 49
Caboon Castle 86
Ewrit 61
Salter's Hill 81
Lottery 50
Georgia
Hyde 74
53
Gales Valley 60
II
III
V
I
CORNWALL
MIDDLESEX
SURREY
Water Valley 82
Annotta Bay
Castleton Gardens 109
Windsor 67
Spring Vale 88
Chapelton 69
Stony Hill 88
Newcastle 114
Chinchona Plant.n 122
Mandeville 88
Hope Res.
Monaltrie 56
Up Park Camp 51
KINGSTON
43
Plumb Pt.
Morant Pt.
Black River 53
Denbigh 54
Ashley Hall 44
Portland
18°
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Stanford's Geog.l Estab.t London

SYMONS'S

MONTHLY

METEOROLOGICAL MAGAZINE.

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DISTRIBUTION OF RAIN IN JAMAICA DURING THE DECADE 1871-80.

BY PROF. V. RAULIN, *of Bordeaux.*

JAMAICA is formed by a mountain chain running nearly E. and W., commencing on the east with the Blue Mountains, which rise to 7,277 feet, and ending with the Dolphin Head towards the west, which is itself 3,445 feet in altitude. Long slopes and plains reach from the mountains to the northern and southern coasts. During the period 1871-80, there were 55 stations at which observations were made during from 4 to 10 years; at 8 others the periods extend to from 11 to 18 years, and at the two military hospitals at Up Park Camp and at Newcastle, they reach to 22 and 28 years respectively.

The seasonal distribution of rainfall in Jamaica is nearly as varied as that of Southern France.

Régime I. is found only in the western part of the island, W. of a line drawn from Falmouth to Black River Bay.

Régime II. forms to the S. of Falmouth a narrow zone, which S.E. of Hyde expands over the whole southern part, from Black River Bay to beyond Kingston. It is also found at the N.W. extremity of the island.

Régime III. forms a narrow zone at a short distance round Falmouth, prevails on the east of the island from Newcastle to Morant Point, and re-appears on the south side at the base of the Portland peninsula.

Régime V. prevails along the N. shore from Falmouth to Annotta Bay.

We have thus (with the exception of some isolated stations) *Régime* I. in the west of the island, *Régime* II. in the south (with an extension to N.), *Régime* III. in the east, and *Régime* V. along the N.

In the eastern part of Cornwall, *Régimes* I., II., III. and V. follow in succession from S.W. to N.E. between Windsor and Falmouth, just as they do in southern France from Clermont-Ferrand, past Limoges to la Rochelle.

RAINFALL IN JAMAICA.

Stations.	Height ft.	Years.	Winter in.	Spring in.	Summ'r in,	Aut'mn in.	Year. in.
RÉGIME I. (as at Moulins).—*Dry Winter and Wet Summer.*							
56. Tryall	120	1876–79 (4)	5·44	8·65	19·60	15·16	48·85
9. Caccon Castle	900	1873–79 (7)	13·27	20·19	29·12	23·32	85·90
8. Burnt Ground	800	1873–79 (7)	9·49	24·96	33·24	26·50	94·19
16. Copse	740	1873–79 (6¾)	10·54	21·78	30·21	29·34	91·87
11. Catherine Mount	180	1873–79 (7)	12·73	13·19	19·75	17·93	63·60
50. Salter's Hill	889	1868–79 (11⅓)	14·66	19·47	23·69	23·32	81·14
37. Latium	447	1874–79 (6)	12·61	16·05	22·08	20·60	71·34
51. Spring Vale	500	1872–79 (7⅔)	14 36	20·27	30·34	23·37	88·34
61. Windsor	20	1865–79 (14⅓)	6·75	19·06	21·44	19·87	67·12
29. Hampstead	600	1857–62 (5¾)	7·90	17·28	17·50	15·57	58·25
RÉGIME II. (as at Lyon).—*Gradual increase from Winter to Autumn.*							
44. Orange Cove	20	1872–79 (7½)	10·51	14·44	21·79	22·09	68·83
34. Irwin	400	1870–79 (9½)	10·63	14·13	15·73	20·80	61·29
23. Gales Valley	300	1875–79 (5)	12·04	12·57	17·84	17·89	60·34
33. Hyde	700	1870–79 (9½)	16·41	17·76	18·15	22·14	74·46
26. Golden Grove	?	1875–79 (4)	12·83	15·93	16·99	19·27	65·02
3. Black River	4	1870–79 (9)	5·89	12·49	15·05	19·82	53·25
22. Fullerswood Park	25	1874–79 (6)	5·28	12·24	12·75	18·65	48·92
39. Mandeville	2130	1870–79 (9½)	9·68	21·50	23·14	33·82	88·14
40. Marshall's Pin	2000	1876–79 (4)	10·86	23·61	26·20	26·94	87·61
60. Whitney	?	1875–79 (5)	8·12	21·72	29·20	30·94	89·98
47. Pennants	718	1876–79 (4)	7·44	20·66	25·82	28·13	82·05
13. Chapelton	1000	1870–79 (6¾)	8·34	14·90	19·57	25·83	68·64
17. Denbigh	198	1862–79 (17½)	5·39	13·46	14·71	20·14	53·70
28. Halse Hall	258	1874–79 (5½)	6·00	18·46	19·73	23·21	67·40
20. Ewing's Caymanas	50	1871–79 (9)	6·06	11·82	13·45	21·16	52·49
53. Stony Hill	1425	1870–79 (5¾)	11·18	19·29	23·47	34·51	88·45
41. Monaltrie	250	1872–79 (8)	5·14	8·00	12·62	24·55	50·31
... Up Park Camp	225	1872–80 (8)	9·36	10·94	12·38	17·98	50·66
31. The Hope Reservoir	650	1871–79 (8)	7·07	10·89	15·65	22·38	55·99
35. Kingston	60	1870–79 (9)	5·13	7·48	11·36	19·21	43·18
46. Palisadoes Plantation	?	1876–79 (4)	4·85	9·33	18·76	19·00	51·94
48. Plumb Point Light	9	1870–79 (9¾)	3·77	6·71	11·28	17·76	39·52
RÉGIME III. (as at Mende). — *Winter and Summer dry, Autumn very wet.*							
15. Content	770	1872–79 (8)	13·59	14·39	11·85	15·63	55·46
55. Tilston	?	1875–79 (4½)	12·59	15·92	14·72	15·99	59·22
38. Lottery	700	1870–79 (10)	12·03	12·51	9·75	15·82	50·11
25. Gibraltar	700	1870–77 (7⅓)	12·15	13·52	12·38	19·62	57·67
57. Unity Valley	1170	1875–79 (5)	20·71	21·34	20·94	23·06	86·05
12. Cave Valley	1800	1871–79 (9)	8·36	20·99	19·59	23·03	71·97
... Newcastle	3800	1871–80 (8½)	20·92	24·83	24·02	44·44	114·21
14. Cinchona Plantation	4850	1871–79 (9)	26·99	27·89	19·29	47·45	121·62
42. Morant Point Light	12	1870–79 (9⅔)	15·04	15·30	15·18	29·76	75·28
2. Ashley Hall	75	1871–75 (5)	4·30	10·35	8·23	20·96	43·84
RÉGIME V. (as at Limoges).—*Winter & Autumn very wet, Spring & Summer rather dry.*							
49. Running Gut	50	1871–79 (9)	10·92	9·26	5·76	14·24	40·18
54. Success	20	1871–79 (9)	10·21	9·82	6·15	14·01	40·19
45. Orange Valley	300	1875–79 (5)	14·35	11·18	9·21	13·28	48·02
27. Green Park	?	1869–79 (10½)	12·63	12·35	8·87	16·78	50·63
19. Dundee	500	1875–79 (5)	14·34	11·77	12·53	17·23	55·87

RÉGIME V.—*(continued.)*

Stations.	Height. ft.	Years.	Winter. in.	Spring. in.	Summ'r. in.	Aut'mn. in.	Year. in.
21. Falmouth	10	1870–79 (9)	10·65	10·34	6·50	14·29	41·78
36. Lancaster	100	1870–79 (10)	15·01	11·56	8·83	16·72	52·12
24. Georgia	700	1870–79 (10)	15·96	12·60	10·50	15·47	54·53
58. Vale Royal	900	1870–79 (10)	17·41	13·55	12·31	17·94	61·21
4. Braco	90	1870–79 (10)	14·42	11·22	8·66	15·49	49·79
7. Bryan Castle	850	1870–79 (9½)	14·86	11·31	8·48	15·83	50·48
6. Brampton Bryan	900	1870–79 (9½)	14·20	12·09	10·66	16·05	53·00
32. Hopewell	900	1872–79 (8)	19·18	13·82	13·28	19·16	65·44
52. Steelfield	700	1870–79 (9½)	14·79	12·42	11·60	16·23	55·04
30. Harmony Hall	?	1870–79 (10)	14·00	9·37	6·35	15·21	44·93
18. Drax Hall	50	1870–79 (10)	20·39	14·21	9·98	22·57	67·15
5. Bradfield	1650	1865–79 (14½)	23·72	19·19	14·19	27·02	84·12
1. Albion	2000	1865–79 (14½)	17·52	16·99	15·56	23·97	74·04
43. New Ramble	700	1875–79 (5)	22·51	18·40	13·57	24·65	79·13
59. Water Valley	100	1875–79 (5)	24·65	17·70	13·55	25·79	81·69
10. Castleton Gardens	700	1871–79 (8)	24·97	23·15	26·04	34·39	108·55

The prefixed reference numbers are those assigned to the respective stations in Mr. Maxwell Hall's official tables, "Jamaica Rainfall from about 1870 to 1879," published in the *Jamaica Gazette.*

ROYAL METEOROLOGICAL SOCIETY.

THE Annual General Meeting of this Society was held on Wednesday evening, January 21st, at the Institution of Civil Engineers, Mr. R. H. Scott, F.R.S., President, in the chair. The Secretary read the report of the Council, which showed the Society to be in a very satisfactory condition. The Council equipped a typical climatological station in the grounds of the International Health Exhibition, in order that persons desirous of organizing a station might see one arranged in accordance with the regulations of the Society. A Conference on Meteorology in relation to Health was arranged for by the Society, and held at the Health Exhibition on July 17th and 18th. The Council have appointed committees to investigate the subjects of the brilliant sunrises and sunsets of 1883-4, and of the local phenomenon known as the Helm Wind of Cross Fell, Cumberland. The observing stations of the Society now number 85, the results from which are printed in the *Meteorological Record.* The whole of the stations in the south of England have been inspected during the year, and found to be generally in a satisfactory state. The number of Fellows on the roll of the Society is 552, of whom 37 were elected in 1884.

The President, Mr. R. H. Scott, then delivered his address, in which he reviewed the distribution of meteorological observatories, and exhibited a large map, showing all the observing stations over the globe, and also the distribution of information as to ocean meteorology existing in the Meteorological Office. He said that there were now six Meteorological Societies publishing journals, and in addition six periodicals almost exclusively devoted to the science. He went on to say, "With all this wealth of literature

there is one particular in which, in this country at least, our science labours under a great disadvantage. As far as I am aware, no instruction is given in it, except at the Royal Naval College, Greenwich. In Germany, in the current half year, no less than eleven courses of lectures are announced at as many Universities or High Schools." Mr. Scott then proceeded to treat of the general state of the science of meteorology over the globe, as compared with the programme sketched out by Prof. James Forbes in the Report of the British Association, 1840, and considered the different kinds of observations proposed by Prof. Forbes for various classes of stations and the degree to which his suggestions had been carried out. The next subject was the attempts which have been made by balloon ascents, mountain stations, &c., to gain a knowledge of the condition of the upper atmosphere, and Mr. Scott stated that on enquiry from the various foreign institutions which possessed affiliated mountain stations he had found that except in the case of Mount Washington, none of the observations were practically much used in forecasting. No telegrams are received from Pike's Peak. In one particular all authorities are agreed that, owing mainly to the uncertainty about their reduction to sea level from great heights, no one has yet suggested any mode in which the barometrical readings could be used. Mr. Scott concluded his address with a notice of the important work by Padre Vines, S.J., of the Havannah, on the "West Indian Hurricanes of 1876 and 1877."

The following gentlemen were elected the Officers and Council for the ensuing year:—

President.—Robert Henry Scott, M.A., F.R.S., F.G.S.

Vice-Presidents.—William Morris Beaufort, F.R.A.S., F.R.G.S., John Knox Laughton, M.A., F.R.A.S., F.R.G.S., Edward Mawley, F.R.H.S., Charles Theodore Williams, M.A., M.D., F.R.C.P.

Treasurer.—Henry Perigal, F.R.A.S.

Trustees.—Hon. Francis Albert Rollo Russell, M.A., Stephen William Silver, F.R.G.S.

Secretaries.—George James Symons, F.R.S., John William Tripe, M.D., M.R.C.P.Ed.

Foreign Secretary.—George Matthews Whipple, B.Sc., F.R.A.S.

Council.—Edmund Douglas Archibald, M.A., George Chatterton, M.A., M.Inst.C.E., John Sanford Dyason, F.R.G.S., Henry Storks Eaton, M.A., William Ellis, F.R.A.S., Charles Harding, Richard Inwards, F.R.A.S., Baldwin Latham, M.Inst.C.E., F.G.S., Robert John Lecky, F.R.A.S., William Marcet, M.D., F.R.S., F.C.S., Cuthbert Edgar Peek, M.A., F.R.A.S., F.R.G.S., Capt. Henry Toynbee, F.R.A.S.

POPULAR PROGNOSTICS.

To the Editor of the Meteorological Magazine.

SIR,—There need not be any mystery respecting the Staffordshire proverb. More than forty years ago I spent a year in the village of Tutbury, and paid frequent visits to the river Dove. Upon the occasion of sudden rains in spring, the river quickly flooded the meadows on each side, and carried with it a quantity of fish, with which it abounded. The flood generally subsided at this time of the

year, as quickly as it had risen, and left many of the small fish upon the grass, which were considered good manure. Hence the proverb. There is another place in Staffordshire which bears a peculiar character both meteorologically and otherwise, viz., Wootton,* which Moll thus describes on page 222 :—

"As for this Moorland, it is so rugged, foul and cold a Tract, that the Snows continue long undissolved, and the neighbours have a Rhime concerning Wooton, a country village here, by which they intimate that God never was in this place, thus :—

"Wooton under Wever,
"Where God came never.

"For it stands under Wever-Hill, and it's an observation of the country people in these parts, that the west wind always produces rain, but that the east and south winds, which are wont to bring rain in other places, make fair weather here, unless the wind shifts about from west to south, and this they attribute to their propinquity to the Irish Sea."

Yours faithfully, C. L. PRINCE.

The Observatory, Crowborough, January 17th, 1885.

To the Editor of the Meteorological Magazine.

SIR,—The river Dove separates, during part of its course, the counties of Stafford and Derby, and the meadows upon its banks are very rich and fertile, and a flood in April always makes a very heavy hay crop, or splendid pastures for dairy or feeding purposes. Hence the origin of the couplets you quote in your January number, and they are often used in Staffordshire; to speak of land being as rich as Dove bank is to signify that it is of the highest and best quality; another common saying is that if you drop your walking stick at night in a meadow on Dove Bank, and do not find it at once, you will not the next day, as the grass will have grown over it by the next morning. Hay grown in Dove meadows also takes a most extraordinary amount of making, and is usually made up into large cocks and kept in them for some time to heat, then opened out again and exposed to sun and wind in order to make it dry enough not to fire in the stack; which it would certainly do if cut and carried in the usual manner; at all times the meadows are very green and fresh, and to a dairy farmer are of very great value, from the vast amount of keep, or hay, they will produce.

I do not know if you have received any replies on this subject, but I have often heard my father, who knew the district well, use the very couplet you quote, and you may accept it as authentic.

Yours faithfully, WILLIAM ARNOLD,
(Late of Tamworth.)

Belvoir House, Woodhurst Road, Moseley, near Birmingham, January 21st, 1885.

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* A Hamlet at the foot of the S.W. slope of the Weaver Hills; it is in the parish of Ellastone. Wootton Hall was built by Inigo Jones, and was in 1766 the residence of Rousseau.—ED.

IS THE RAINFALL OF KANSAS INCREASING?

OUR excellent contemporary, *Science*,* in its 100th number, reports a lecture with the above title, given before the Kansas Academy of Sciences, on November 25th, by Prof. Snow.

We have not space to reprint the whole, but intend to give the opening paragraph, the principal results, and a few remarks upon them.

Before doing so, it may be well to mention the position and area of the state of Kansas. It lies west of the Mississippi, in about 39° N. lat., (*i.e.*, in that of Southern Spain) and in nearly the centre of the United States; its area is given by Hubbard as 88,318 square miles (about three-fourths of that of Great Britain and Ireland).

"Thirty years ago the territory of Kansas was not occupied by the white man, and, if we except a few acres cultivated by the Delaware Indians, no portion of her soil had been turned up by the plough. Her entire area was included within the vast and almost unknown region of the 'treeless plains' and the 'great American desert.' During that brief intervening period, more than a million people, chiefly of the agricultural class, have taken possession of her domain, and have already brought her to the very front rank of the states of the Union in the extent and value of her agricultural products. History affords no other instance of the permanent occupation of so extensive an area, previously unoccupied by man, by so large an agricultural population, in so short a space of time. Here, certainly, if human agency could anywhere affect climate, would such an effect be produced. Here, assuredly, if settlement ever increases rainfall, will such increase be most marked and most unmistakable. That such increase has actually taken place, I believe to be established beyond a doubt. It is a circumstance peculiarly favourable to the determination of the point in question, that, although the general settlement of Kansas by cultivators of the soil is of such recent date, reliable observations upon the rainfall had been made at the military posts upon the eastern borders for a sufficient period to make possible a satisfactory comparison between the rainfall before settlement and after settlement. The records at Fort Leavenworth cover the longest period, and enable us to compare the nineteen years immediately preceding the occupation of Kansas by white settlers, with the nineteen years immediately following such occupation. During the first period the average rainfall was 30·96 inches; during the second period it was 36·21 inches; giving an average increase of 5·21 inches per annum†—an increase of nearly twenty per cent. The Fort Leavenworth records cover so long a period of time (nearly forty years), that the increased average of the second half of the period cannot be attributed to a mere 'accidental variation.' In the issue of *Science* for April 18, 1884, it is stated that 'the supposed increase in the rainfall in the dry region beyond the Mississippi is not borne out by the returns of the signal-service.' But the records of the signal-service upon which this statement was based include a period of only twelve years of observation

* The Science Company, Cambridge, Massachusetts.

† There is here an error, either in arithmetic or printing, of ·04, but the amount is too small to affect the question; we have taken 5·25 as the true value.—ED. *M.M.*

(from 1871 to 1882), which is undoubtedly too short a period for either establishing or disproving the fact of a 'secular' variation."

Prof. Snow then mentions that there are other rather long registers in the State, and that they lead to similar results. No table is given, but it will save much space to throw his statements into that form.

Station.	Total years observed.	Excess of rainfall in the second half of the foregoing period. in inches.	Per cent.
Fort Leavenworth	38	5·25	17
Fort Riley	20	3·05	13
Manhattan	24	5·61	20
Lawrence	17	3·06	9

The position of Kansas renders the thorough examination of these facts most important, and we hope that we may be able to induce Prof. Snow to favour us with the whole of the yearly totals which he has used, and with all obtainable information as to the life history of each station, removals and renewals of the various gauges, &c. We shall readily give all necessary space in order that the question may be thoroughly examined. Experience with the long registers kept in the Old World has convinced us of the difficulty of being sure that differences such as the above are real—*i.e.*, are due to general increase, and not to casual wet or dry periods, or increased accuracy in modes of measurement, removal of gauges from roof tops to ground level, and similar apparently slight changes.

The question is of general importance; it does not concern Kansas alone, and we hope to have Prof. Snow's help in examining it as thoroughly as is possible.

SNOW ROLLERS.

To the Editor of the Meteorological Magazine.

SIR,—On the 13th inst. a large number of "Snow Rollers" were formed here, and as I see from a letter in *Nature*, vol. xxvii., p. 507, that the phenomenon has not often been noticed in England, you may think the circumstance worth recording. I first noticed a few on the 12th, the snow being about 0·5 in. deep, and a strong N. wind blowing; more snow fell in the night and next morning, to a depth of rather more than three inches, and on going out in the afternoon I found all the open fields strewn with a number of rollers, varying in size from that of a hen's egg to cylinders about nine inches in diameter, and about the same length. I did not see any in course of formation, but there were tracks in the snow leading up to them on the windward side. The snow was rather moist, temperature being about the freezing point, and lay light, three in. of snow yielding 0·11 in. of water at 9 a.m. A few of the larger ones were left next day, but the greater part had been blown away.

H. MELLISH.

Hodsock Priory, Worksop, January 15th, 1885.

PENTHEMERIC TABLES.

To the Editor of the Meteorological Magazine.

SIR,—I have invented a Table of Rain which I call a Penthemeric Table, a term which explains itself. It combines in some degree the compactness of a monthly table with the precision of a daily one. In a monthly table, though we have the total of the month, we have not information as to how that quantity of rain was distributed during the month. And in a daily table the eye is bewildered by the long columns and a great number of figures. In a Penthemeric Table you see at a glance what was the pluvial character of each month, what parts of the month were rainy, and what parts were dry.

I subjoin such a table for the rain that fell at Cottingham (East Riding, Yorkshire) last year.—Yours truly,

J. H. HILL.

Hull.

Penthemeric Table of Rain at Cottingham in 1884.

Jan.	Feb.	March,	April.	May.	June.
110	66	51	21	32	12
5	22	65	22	16	51
9	9	15	56	20	0
0	7	4	11	4	4
68	38	5	7	0	7
85	5	32	34	0	0
277	147	172	151	72	74

July.	August.	Sept.	Oct.	Nov.	Dec.
36	0	26	8	25	62
66	31	47	27	17	24
17	10	1	43	5	43
3	6	1	0	34	115
27	2	32	13	11	20
24	76	14	17	28	1
173	125	121	108	120	265

N.B.—Each number represents the hundredths of an inch of rain of five days, except the last number in the month, which relates in some cases to six days, and in February only to three.

THE NEW TIME.

To the Editor of the Meteorological Magazine.

SIR,—I do not think that *Bradshaw* should be blamed for using the old time, for though no doubt if *Bradshaw* were to adopt the new time the general public would soon follow, yet as the change really depends on the railway companies, should not the first step towards its adoption by the public, through *Bradshaw*, be for the companies to agree *among themselves* to use the new time of day? Seing that only one company has done so, and that a small one, surely it was natural for *Bradshaw* to convert its figures back again for the sake of uni-

formity. It would never do to have part of that publication to be printed in one time and part in the other, the only alternative for *Bradshaw* being to convert the old time into the new in the case of all the other companies, and this would be inconvenient as long as the railway companies themselves in their own time-tables and by their officers use the old time. I think that what is really peculiar is that neither meteorologists nor other scientific men nor any authorities have come to a decision as to the date at which the adoption of the new time should take effect.—Yours truly,

T. W. BACKHOUSE.

[We at once accept Mr. Backhouse's correction. It was for the general managers in meeting assembled to consider the subject, and probably they have decided—upon making no change. But our argument remains where it was, except that for the word "Bradshaw" we should have written "railway managers."

It seems to us that, as with many other things, this proposal having been snubbed and shelved at the proper moment, it is to be definitely driven into the limbo of unadopted improvements; one of the most recent arguments proving conclusively (to the arguer's mind, not to ours) that it cannot possibly be adopted before 1890. That it will not be adopted even then we are inclined to believe, for having been checked just when the public were taking up the idea, it will not be easy to arouse them a second time to the advantages of the change. We believe that its adoption for meteorological purposes would be beneficial, but, before adopting it, shall wait until we hear the decision of the Royal Meteorological Society upon the question.—ED.]

DRY DATES IN 1884.

To the Editor of the Meteorological Magazine.

SIR,—On looking over the record of "Rainfall" of 1884, there is one feature which is singular, and I think worthy of notice. I allude to the absence of rain on the 16th and 17th of the month, and it would be interesting to know whether it is peculiar to this district, or has prevailed in other parts.

On January 16th, ·01 was recorded, and ·13 on December 16th, no rain having been registered on the 16th of any one of the ten intervening months; on the 17th of July, ·02 was recorded, and no rain on the 17th of the other eleven months of the year.

On examining records of rainfall of past years, not here, but at Muswell Hill, I find the year 1874 also a dry one, like 1884, shows a somewhat similar characteristic, but not to the same extent, on the 20th of the month of that year, ·01 having fallen on January 20th, and ·03 on Sept. 20th, and no rain on the 20th of the other ten

months, and though rain fell on the 21st of four months of that year, the amounts were very small, being ·01, ·04, ·04, and ·03 only.

I am, Sir, yours faithfully,

J. W. SCOTT.

P.S.—Having access to the daily return of rainfall at Muswell Hill for the past year, I find that the amounts registered on the 16th of each month are exactly the same as here, but those of the 17th differ; ·04 fell on May 17th, ·07 on July 17th, and ·02 on November 17th.

Springlands, Great Stanmore, Middlesex, Jan. 6th, 1885.

IRIDESCENT BANDS.

To the Editor of the Meteorological Magazine.

SIR,—By a typographical error in the *Meteorological Magazine* of this month (p. 192, line 11), an incorrect idea is conveyed as to the remarkable phenomena observed here at sunrise on the 8th and 12th of December, placing a full stop after "it," and a capital T for "towards," making it read as if the openings towards the S.E. only, showed the prismatic colours, one of the most beautiful features in the phenomena was the three distinct bands of prismatic colours completely edging the openings. I should not have thought it worth while calling attention to this error, if it was not that the phenomenon appears not to have been observed before; it was noticed at a meeting of the Royal Society, Edinburgh, last month, and Prof. Tait, I understand, intends investigating it. I have not heard if he has done so yet. I do not think the peculiar and beautiful appearance can be assigned to ice Spiculæ.—I remain, Sir, yours trluy,

P. A. DUDGEON.

January 17th, 1885.

[The line was printed as follows :—

"several openings in it. Towards the S.E. these openings were, &c."

It should have been—

"several openings in it towards the S.E. ; these openings were, &c."

We agree with Mr. Dudgeon as to the rarity of the appearance. We may, however, refer those interested to Herschell's *Meteorology*, 1861, p. 224.—ED.]

LIGHTNING CONDUCTORS IN SCANDINAVIA.—Professor Mohn, of Christiania, who was commissioned by the Swedish Government to hold an official inquiry as to the degree of protection afforded by lightning conductors, ascertained that lighthouses, telegraph stations, and other bulidings, very much exposed, but provided with lightning conductors, suffered considerably less than the churches, which are in Norway generally not protected against lightning. Out of 100 churches struck, only three were provided with lightning conductors. In one, the conductor of which was in good condition no damage was done. In the second, the conductor, which was of zinc, was melted. In the third, the conductor was eaten by rust where it entered the soil ; and the church was set on fire.—*Electrician.*

DENTON'S UNCHANGEABLE THERMOMETERS.

Meteorologists have long been familiar (unpleasantly so) with the fact that mercurial thermometers read higher the older they are. The largest proportion of the total rise takes place immediately after they are made, and consequently it has for many years been the practice of the best opticians to make and fill the tubes long before putting on the divisions; in some cases, we believe, that tubes are laid by for as long as three years. Even after that period a slight rise occurs, and this "shifting of the zero point," as it is called, renders necessary from time to time the re-determination of the index error.

Mr. Denton exhibited to the Meteorological Society on November 15th, 1882, a number of thermometers, which, by some special process in construction, he stated were not liable to change; and in proof thereof produced certificates of the thermometers showing that although verified within a few months of their being made, there had, within a twelvemonth, been scarcely a rise of 0°·1.*

Mr. Denton sent these same thermometers to the Health Exhibition. The Jury selected six (four ordinary and two clinical), and sent them to Kew for a fourth verification. The results were so satisfactory that they awarded a silver medal. We annex a table of the results of each verification, which show that the change never exceeds 0°·2, is generally 0°·1 and frequently *nil*.

No. of Thermometer.	Date of Verification.	CORRECTIONS AT 32°	42°	52°	62°	72°	82°	92°	Mean.
19328	June, 1881.....	·0	·0	—·1	·0	·0	·0	·0	—·014
	January, 1882..	—·1	—·2	—·2	—·1	—·1	—·1	—·1	—·103
	June, 1882.....	—·1	—·1	—·1	—·1	—·1	—·1	—·1	—·100
	July, 1884	—·1	—·1	—·1	—·1	—·1	—·1	—·1	—·100
19329	June, 1881.....	·0	·0	—·1	·0	·0	·0	·0	—·014
	January, 1882..	—·2	—·2	—·2	—·1	—·1	—·2	—·1	—·157
	June, 1882.....	—·2	—·1	—·1	—·1	—·1	—·2	—·1	—·128
	July, 1884	—·2	—·1	—·1	—·1	—·1	—·2	—·1	—·128
19332	June, 1881.....	·0	·0	—·1	·0	·0	—·1	—·1	—·043
	January, 1882..	—·1	—·2	—·2	—·1	—·1	—·1	—·1	—·128
	June, 1882.....	—·1	—·1	—·1	—·1	—·1	—·1	—·1	—·100
	July, 1884	—·1	—·1	—·1	—·1	—·1	—·1	—·1	—·100
19336	June, 1881.....	·0	—·1	·0	·0	·0	·0	·0	—·014
	January, 1882..	—·2	—·3	—·2	—·2	—·2	—·2	—·1	—·200
	June, 1882.....	—·1	—·2	—·2	—·2	—·2	—·1	—·1	—·157
	July, 1884	—·1	—·2	—·2	—·2	—·2	—·1	—·1	·157

**Met. Mag.*, vol. xvii. p. 168 (December, 1882.).

CLIMATOLOGICAL TABLE FOR THE BRITISH EMPIRE, JUNE, 1884.

STATIONS. (*Those in italics are South of the Equator.*)	Absolute. Maximum. Temp.	Absolute. Maximum. Date.	Absolute. Minimum. Temp.	Absolute. Minimum. Date.	Average. Max.	Average. Min.	Average. Dew Point.	Average. Humidity.	Absolute. Max. in Sun.	Absolute. Min. on Grass.	TotalRain. Depth.	TotalRain. Days.	Aver. Cloud.
	°		°		°	°	°	0–100	°	°	inches		
England, London	81·7	27	40·6	1	69·7	50·0	49·5	73	107·3	45·7	2·84	7	6·4
Malta	79·2	30	57·4	14	74·9	62·7	59·7	75	137·8	52·5	·54	4	3·9
Mauritius	77·7	1	57·4	4	75·3	64·9	61·1	75	122·5	46·2	1·06	13	4·4
Calcutta	94·5	5	70·2	6	90·3	76·7	77·2	84	158·9	67·4	11·72	19	6·3
Bombay	92·1	10	75·6	20	88·6	79·4	76·7	78	143·9	73·8	13·25	16	5·5
Ceylon, Colombo	86·2	9	74·8	30	84·7	78·4	73·7	77	141·2	65·2	7·39	17	7·5
Melbourne	68·1	2	34·0	30	58·2	43·9	43·1	77	111·0	28·2	·84	10	6·1
Adelaide	72·2	3	39·6	30	60·0	47·9	46·3	75	128·9	32·2	4·56	23	5·8
Wellington	...	...	...	...	...	...	...	..	...	...	...	...	...
Auckland	63·0	12	37·0	1	57·9	48·1	46·6	78	115·0	29·0	4·23	18	6·7
Jamaica, Kingston	90·4	7	70·5	2	86·8	73·3	73·1	80	...	...	1·77	...	7·1
Barbados	84·0	1	71·0	var.	82·0	73·0	71·7	84	153·0	69·0	5·68	13	6·0
Toronto	84·3	23	42·9	1	75·9	53·4	56·4	72	144·0	35·8	2·20	8	6·8
New Brunswick, Fredericton	92·7	29	33·0	1	76·6	48·6	51·0	66	...	...	4·23	15	4·3
Manitoba, Winnipeg	88·5	22	39·2	9	74·7	54·8	57·1	73	...	...	2·53	8	6·8
British Columbia, Spence's Bridge	...	...	...	...	...	...	...	...	...	...	...	...	...

REMARKS, JUNE, 1884.

MALTA.—Mean temp., 68°·0; mean hourly velocity of wind, 10·3 miles, on 19th velocity averaged 26 miles for 4 hours; sea temp. rose from 70° to 74°. The after-glow at sunset continued, and was of a pale rose colour. J. SCOLES.

Mauritius.—Rainfall 0·86 in., and mean temp. 0°·6 below their respective averages; max. velocity of wind 27·1 miles on 23rd, min. 2·3 miles on 4th; prevailing direction S.E. to E. Coloured skies before sunrise and after sunset every day, beginning 1h. 14m. before sunrise, and ending 1h. 14m. after sunset. Prevailing colours orange and yellow, much less intense than in September to January last. C. MELDRUM, F.R.S.

CEYLON.—Thunderstorms occurred on five days. J. H. SYMONDS.

Melbourne.—Mean temp. 0°·7 above average; temp. of dew-point, humidity, amount of cloud and pressure all more or less below it; total rain 1·13 in. below it Prevailing winds N. and N.E., strong breezes on eight days. Heavy dew on six days; hoar frost on three days. R. L. J. ELLERY, F.R.S.

Adelaide.—Mean pressure the lowest in January since 1875; mean temp. slightly above the average; the max. on 3rd being the highest in June since 1865. Rainfall 1·96 in. above the average. The Zodiacal light was visible on three evenings, and the red glow was seen shortly after sunset on most clear evenings. C. TODD.

Auckland.—From 1st to 7th fine, with light S. and E. winds, and sharp frosts on 1st, 2nd, and 3rd; from 8th to the 20th unsettled and showery with N.E. gales; from 25th to end of month, squally and showery with light S.W. winds. Pressure above the average; mean temp. and rainfall a little below it. T. F. CHEESEMAN.

BARBADOS.—Mean temp., 76°·8, 0°·5 below the average. Wind N.E., mean hourly velocity 11·5 miles, which is about the average; extremes 16·5 miles and 7 miles. Rainfall 1 per cent. above the average; four days were overcast.

R. BOWIE WALCOTT.

SUPPLEMENTARY TABLE OF RAINFALL, JANUARY, 1885.

[For the Counties, Latitudes, and Longitudes of most of these Stations, see *Met. Mag.*, Vol. XIV., pp. 10 & 11.]

Div.	STATION.	Total Rain.	Div.	STATION.	Total Rain.
		in.			in.
II.	Dorking, Abinger	2·57	XI.	Rhayader, Nantgwillt..	6·64
,,	Margate, Birchington...	2·07	,,	Carno, Tybrith	4·83
,,	Littlehampton	1·45	,,	Corwen, Rhug	1·17
,,	Hailsham	2·64	,,	Port Madoc	4·15
,,	I. of W., St. Lawrence.	2·15	,,	I. of Man, Douglas	3·43
,,	Alton, Ashdell.....	3·36	XII.	Stoneykirk, Ardwell Ho.	1·68
III.	Winslow, Addington ...	2·04	,,	Melrose, Abbey Gate...	2·54
,,	Oxford, Magdalen Col...	2·17	XIII.	N. Esk Res. [Penicuick]	2·50
,,	Northampton	1·42	XIV.	Ayr, Cassillis House ...	2·53
,,	Cambridge, Beech Ho...	1·58	,,	Glasgow, Queen's Park.	2·45
,,	Wisbech, Bank House..	1·42	XV.	Islay, Gruinart School..	5·14
IV.	Southend	1·27	XVI.	St. Andrews, Newton Bk.	1·18
,,	Harlow, Sheering	1·48	,,	Balquhidder, Stronvar..	7·08
,,	Rendlesham Hall	2·03	,,	Dunkeld, Inver Braan..	3·24
,,	Diss	2·46	,,	Dalnaspidal H.R.S. ...	4·65
,,	Swaffham	2·81	XVII.	Keith H.R.S.	1·43
V.	Salisbury, Alderbury...	2·76	,,	Forres H.R.S.	1·07
,,	Warminster	3·22	XVIII.	Strome Ferry H.R.S....	4·36
,,	Calne, Compton Bassett	2·78	,,	Lochbroom	3·78
,,	Ashburton, Holne Vic..	5·81	,,	Tain, Springfield.....	1·48
,,	Holsworthy, Clawton...	2·67	,,	Loch Shiel, Glenaladale	6·84
,,	Hatherleigh, Winsford.	2·60	,,	Invergarry	5·13
,,	Lynmouth, Glenthorne.	3·69	XIX.	Lairg H.R.S.	...
,,	Probus, Lamellyn	3·36	,,	Forsinard H.R.S.	1·61
,,	Wincanton, Stowell Rec.	3·13	,,	Watten H.R.S.	1·57
,,	Taunton, Fullands	...	XX.	Dunmanway, Coolkelure	8·07
VI.	Bristol, Clifton	2·73	,,	Fermoy, Gas Works ...	3·52
,,	Ross	2·95	,,	Tralee, Castlemorris ...	3·14
,,	Wem, Sansaw Hall.....	1·85	,,	Tipperary, Henry Street	4·12
,,	Cheadle, The Heath Ho.	1·83	,,	Newcastle West	3·73
,,	Worcester, Diglis Lock	1·59	,,	Miltown Malbay.....	3·71
,,	Coventry, Coundon	2·03	,,	Corofin	...
VII.	Melton, Coston	1·61	XXI.	Carlow, Browne's Hill..	3·08
,,	Ketton Hall [Stamford]	1·23	,,	Navan, Balrath	1·53
,,	Horncastle, Bucknall ...	1·81	,,	Mullingar, Belvedere ...	2·55
,,	Mansfield, St. John's St.	2·22	,,	Athlone, Twyford	2·34
VIII.	Macclesfield, The Park	2·18	XXII.	Galway, Queen's Col....	2·87
,,	Walton-on-the-Hill.....	1·66	,,	Clifden, Kylemore	10·46
,,	Lancaster, South Road.	2·33	,,	Crossmolina, Enniscoe..	5·23
,,	Broughton-in-Furness ..	...	,,	Carrick-on-Shannon ...	3·27
IX.	Wakefield, Stanley Vic.	·92	XXIII.	Dowra	...
,,	Ripon, Mickley	2·31	,,	Rockcorry.....	...
,,	Scarborough.....	1·97	,,	Warrenpoint	2·81
,,	East Layton [Darlington]	1·86	,,	Newtownards	1·69
,,	Middleton, Mickleton..	2·95	,,	Belfast, New Barnsley .	3·03
X.	Haltwhistle, Unthank..	1·68	,,	Cushendun	2·52
,,	Shap, Copy Hill	5·03	,,	Bushmills	...
XI.	Llanfrechfa Grange	3·71	,,	Stewartstown	2·73
,,	Llandovery	4·48	,,	Buncrana	2·94
,,	Castle Malgwyn	3·89			

JANUARY, 1885.

Div.		STATIONS. [The Roman numerals denote the division of the Annual Tables to which each station belongs.]	RAINFALL. Total Fall.	Difference from average 1870–9	Greatest Fall in 24 hours. Dpth	Date.	Days on which ·01 or more fell.	TEMPERATURE. Max Deg.	Date	Min. Deg	Date.	No. of Nights below 32°. In shade.	On grass.
			inches	inches.	in.								
I.	ENGLAND.	London (Camden Square) ...	1·43	— ·92	·31	10	16	53·3	29	22·8	22	19	20
II.		Maidstone (Hunton Court)...	2·47	— ·10	·49	31	16	...	...	...	...	...	...
,,		Strathfield Turgiss	2·98	+ ·43	1·01	31	14	55·0	29	21·7	20	20	21
III.		Hitchin	2·25	+ ·03	·59	31	15	51·0	29	19·0	21	25	...
,,		Banbury	1·75	— ·63	·22	9, 30	18	51·0	28*b*	20·5	22	25	...
IV.		Bury St. Edmunds (Culford)	2·82	+ ·98	·93	12	18	54·0	29	23·0	22	21	...
,,		Norwich (Cossey)	2·45	+ ·75	·49	10	16	53·5	29	20·0	14	21	20
V.		Weymouth(LangtonHerring)	2·66	...	·55	29	16	...	...	...	...	...	...
,,		Barnstaple.....	3·16	— 1·10	·59	7	18	56·0	30	30·0	6	...	...
,,		Bodmin	3·88	— 2·63	·78	28	20	52·0	29	27·0	14	10	17
VI.		Stroud (Upfield)	2·47	— ·45	·52	9	16	52·0	29	26·0	5	20	...
,,		ChurchStretton(Woolstaston)	2·57	— ·86	·56	28	16	50·5	29	24·0	22	21	22
,,		Tenbury (Orleton)	2·06	— ·93	·50	28	17	53·2	29	21·5	6	19	24
VII.		Leicester	1·78	...	·31	10	18	52·2	29	22·5	22	17	26
,,		Boston	1·86	+ ·14	·40	10	16	54·0	29	26·0	22	15	...
,,		Grimsby (Killingholme).....	2·05	+ ·29	·29	12	20	54·0	29	27·0	22	11	...
,,		Hesley Hall [Tickhill].....	1·25	...	·18	28	17	55·0	29	20·0	22	20	...
VIII.		Manchester (Ardwick).....	1·81	— 1·43	·54	10	10	52·0	29*c*	24·0	22	18	...
IX.		Wetherby (Ribston Hall) ...	2·13	— ·09	·42	29	14	...	...	...	...	...	...
,,		Skipton (Arncliffe)	5·11	— 1·82	1·29	28	20	50·0	29	27·0	22	17	...
X.		North Shields	1·88	+ ·04	·58	11	15	54·8	29	27·4	22*e*	14	14
,,		Borrowdale (Seathwaite).....	11·36	— 7·39	1·85	28	14	50·0	29	25·0	23	5	...
XI.	WALES.	Cardiff (Ely).....	3·47	— 1·24	·66	9	18	...	...	...	...	...	...
,,		Haverfordwest	4·43	— 1·84	·60	25	19	51·0	29*c*	27·0	6	12	17
,,		Plinlimmon (Cwmsymlog) ...	3·66	...	1·15	9	14	...	...	...	...	...	...
,,		Llandudno.....	1·33	— 1·63	·18	9*a*	15	55·2	29	27·0	21	...	...
XII.		Cargen [Dumfries]	3·68	— 2·43	·84	28	14	49·2	29	24·2	22	16	...
,,		Jedburgh (Sunnyside).....	...	...	...	...	...	...	...	...	..	...	...
XIV.		Douglas Castle (Newmains)	3·57	— 1·87	1·27	31	13	...	...	...	..	...	...
XV.		Lochgilphead (Kilmory).....	5·07	— 2·80	·68	8	15	...	...	...	..	...	...
,,		Oban (Craigvarren)	4·65	...	1·08	8	14	52·0	4	25·0	15	10	...
,,		Mull (Quinish).....	4·97	..	·92	4	19	...	...	...	...	...	...
XVI.		Loch Leven Sluices	2·70	— 1·12	·40	10*b*	13	...	...	...	...	...	...
,,		Arbroath	1·59	— ·86	·31	28	16	46·0	29*c*	23·0	16	16	...
XVII.		Braemar	2·87	+ ·09	·41	7	16	46·2	5	4·8	16	26	29
,,		Aberdeen	1·74	...	·32	4	20	47·0	29	19·0	15	12	...
XVIII		Skye (Sligachan)	10·17	...	3·00	5	14	...	...	...	...	...	...
,,		Culloden	1·47	— ·30	...	...	...	47·0	26	15·0	21	17	30
XIX.		Dunrobin	2·17	...	·42	10	11	50·0	5	22·0	21	18	...
,,		Orkney (Sandwick)	2·14	— 1·20	·50	9	13	49·2	5	30·2	17	4	21
XX.		Cork (Blackrock)	4·99	— 1·03	·91	25	20	53·0	10*d*	27·0	13	10	...
,,		Dromore Castle	6·62	...	1·00	10*c*	20	53·0	5	28·0	13	...	...
,,		Waterford (Brook Lodge) ...	4·26	...	·63	2	20	52·0	26	27·0	14	9	17
,,		Killaloe	3·95	...	·72	9	19	53·0	31	26·0	19	12	...
XXI.		Portarlington	2·37	— ·69	·76	2	22	52·0	27	26·0	14	13	...
,,		Dublin (FitzWilliam Square)	1·62	— ·64	·32	7	23	53·7	29	29·0	13	5	12
XXII.		Ballinasloe	2·73	— 1·63	·40	31	22	50·0	26	24·0	14*f*	18	...
XXIII		Waringstown	1·97	— 1·44	·31	27	18	56·0	29	24·0	12	13	18
,,		Londonderry (Creggan Res.).	2·69	...	·37	10	20	...	...	...	...	...	...
,,		Omagh (Edenfel)	2·90	— ·87	·51	27	21	51·0	27	26·0	8	12	15

a And 28, 31. *b* And 29. *c* And 30. *d* And 26. *e* And 23. *f* And 19.

+ Shows that the fall was above the average ; — that it was below it.

METEOROLOGICAL NOTES ON JANUARY.

ABBREVIATIONS.—Bar. for Barometer; Ther. for Thermometer; Max. for Maximum; Min for Minimum; T for Thunder; L for Lightning; T S for Thunderstorm; R for Rain; H for Hail S for SNOW.

ENGLAND.

STRATHFIELD TURGISS.—The early part of the month was fair and cold, the latter part wet and stormy. A robin's nest with two eggs was found on 2nd, and on the 7th a nest of young sparrows; on 5th a female brimstone butterfly emerged from the pupa; thrushes heard on 23rd.

CULFORD.—The most noteable features of the month were the frequent high winds, the heavy fall of S on the 12th, and the numerous white frosts.

LANGTON HERRING.—From the 12th to 22nd the weather was cold; most of the days were gloomy and foggy, and the range of temp. was small. The 30th and 31st were stormy, with vivid L and T on the latter day. The roaring of the sea on the 29th and 30th was very noticeable. Mean temp. 2° below the average.

BODMIN.—Mean temp. 39°·6.

STROUD.—A dry, pleasant month, but not much sun. S.S.W. gale on 29th. Sheet L in S.E. from 6 to 8 p.m. on 31st.

WOOLSTASTON.—A seasonable month of winter weather, with sharp frost nearly every day till the 25th, when a rapid thaw set in. S fell on the 17th Mean temp. 35°·5.

ORLETON.—The temp. of the first 11 days was variable, with occasional severe frosts, but as a whole was above the average; it then became much lower than the average and very steady, with a strong N. or E. wind till the 26th. The remainder of the month was warm and rainy. Mean temp. of the month about 1°·5 above the average. The rainfall was very small till the 24th, and the roads and fields were unusually dry, but after that date R fell every day. The sky was generally obscured by clouds, and from the 13th to the 27th the sun was only once seen for a few minutes. Strong winds prevailed nearly all the month. Frequent L was seen in S.W. on the night of the 31st.

LEICESTER.—The month was dry, but dull, with very little sunshine. Temp. very variable. S fell on 3 days, and there was much hoar frost.

KILLINGHOLME.—A seasonable month, though vegetation was more backward than in the preceding years, with signs of spring at the close; no heavy gales; much S on 12th and 13th.

MANCHESTER.—The month was, on the whole, dry and not very wintry, although at times the temp. fell rather low. The weather, though not bright, was fairly free from fogs.

WALES.

HAVERFORDWEST.—The month commenced cold, stormy and wet; from the 5th to the 13th it rained every day, with cold, bleak air. S fell in considerable quantities on the 12th, covering the high ground in the N.E. and the Precelly range. S fell also on 13th and 17th. The weather from the 13th to the 23rd was very cold and frosty, accompanied by a bitter E. wind, which at times almost reached the force of a gale; the 21st was a very severe day with a gale from the E., overcast sky, and mean temp. for the 24 hours of 31°·1; from 19th to 23rd dark weather prevailed, the sun never being visible. Mean temp. of the month slightly below the average. L H and R on 11th. Remarkable spring tides prevailed on 3 or 4 days, and on 31st did much damage at Newgate; a strong W. gale caused the waves to break over the bank of pebbles which extends for fully 2 miles and rises 20 or 25 feet above the sands. Such an occurrence has not taken place since January, 1869.

LLANDUDNO.—A month of rather chequered weather. The mean temp., however, was but little below the average; from the 11th to the 21st, inclusive, the wind blew from an easterly point, it was dull and hazy, but not a drop of

R fell; after the latter date the weather was markedly milder, and the month went out with a heavy gale on the 31st. No frosts of great severity, not enough to kill or materially damage geraniums, veronicas, stocks and wallflowers. Snowdrops were blooming in abundance at the close.

SCOTLAND.

CARGEN.—A very dull month, the hours of sunshine being only 35 as compared with an average of 62 hours. Mean temp. 36°·7, 1°·6 below the average. Strong gales on 7th, 10th and 31st.

OBAN.—There were, as in the preceding month, two distinct periods of R and an interval of frost, the latter being, in this case, much more marked and prolonged. So fine a January, and one so free from storms has not been experienced here for some years. S on 9th. H on 5th, 6th and 8th.

QUINISH.—The first 11 days were wet and stormy, followed by fine and frosty weather with bright sunshine till the 24th, after which mild damp weather prevailed to the close. Heavy gale, with T and L on the 6th.

ABERDEEN.—With the exception of a week of cold, frosty weather about the middle, the month was fine and open, with a rainfall considerably below the average. S fell on four days. Aurora was observed on only one night. Fresh gale from S. on 31st.

CULLODEN.—Very severe frost prevailed during the entire month, interrupting field labour. R fell only during the first and closing weeks.

IRELAND.

DROMORE.—The month was very stormy at times, the later part being very wet and cold.

KILLALOE.—Rainfall moderate; frosts frequent but slight, weather generally very favourable for the time of year. Wind blew heavily from S.W. on night of 27th.

DUBLIN.—A dull month of average temp., with a remarkable prevalence of S.E. winds, densely clouded skies, and a deficient rainfall, scattered, however, over an excess of rainy days. The last few days were warm and very unsettled with squally S. winds, and frequent showers by night. The mean temp. (40°·8) was exactly equal to the average, and identical with that of the preceding month. Mean humidity 84; mean amount of cloud 6·8; prevailing winds S.S.E., S.E., and W.S.W. Solar halo on 5th; luuar on 27th; L on 31st; S or sleet on three days; H on three days; more or less fog on four days; lunar rainbow on 31st; gales on the 8th, 10th, 17th, 28th and 31st.

WARINGSTOWN.—The early part of the month was very dry, in fact up to the 26th it bade fair to be the driest January on record.

EDENFEL.—The unsettled rainy weather which prevailed up to the 12th gave way on that day to a light fall of S, followed by 10 days of calm, generally clear weather and light pleasant frosts, the temp. keeping between 36° and 26°. The last week was mild and showery, but generally clear and fine.

SCRAPS.

THUNDERSTORMS.—DR. S. HOPPE, of Hamburg, recently stated before the Congress of Medical Men and Physicists of that city, as the result of his experiments, that the flowing of a column of warm, moist air into a colder atmosphere will be followed by a thunderstorm if the electricity generated by the friction of the air is not diffused and neutralized by the condition of the surrounding atmosphere. It should not be forgotten that the vapour of water or of moist air has long been known to develope electrical disturbances.—*Athenæum, 24th January, 1885.*

THERMOMETER SCALES.—"A thermometer is not without honour, save in its own country," quotes a French paper, and proves it thus. In France, the thermometer in use is that of Celsius, a Swede; in Germany and Russia, that of Réaumur, a Frenchman; in England and America, that of the German Fahrenheit; while the Swedes disown their countryman, and are guided by hat of Leslie, a Scotchman. [? as regards the last statement.—ED.]